Approved For Release 2001/08/09 : CIA-RDP86-00244R000100140027-2

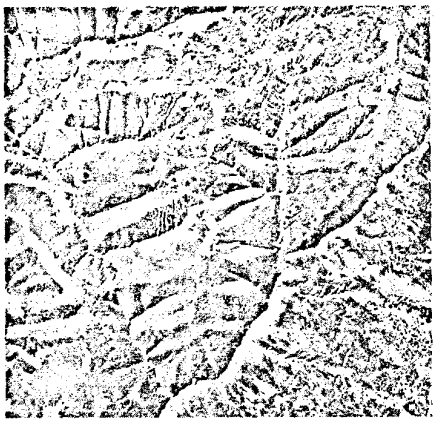
Rugged highway starts across northern Greece

Construction is about to start on a 500-mile highway through rugged mountains of northern Greece from the Ionian coast to Turkey. The route, called Egnatia Way, climbs through the Pindus Range where hardly a jeep track now penetrates.

Because nearly half the route is almost impassable and the engineers have but three years to complete designs, they used aerial photogrammetry to survey it and depend on computers to speed detailed design.

About two years ago MacDonald Construction Co., St. Louis, signed a $150-million contract with the Greek government to design and construct the road in five years. The route is a partial revival of an ancient Roman road.

The engineers had only old maps with a scale of 1:50,000 to lay out preliminary alternates. MacDonald retained The J.G. White Engineering Corp., New York City, as primary consultants. Hydomechaniki, SA, Athens, is working on detailed design. As engineering continues, MacDonald let the first construction subcontract two weeks ago. The 18 miles at the western end went to Pantechniki, SA, Athens, for about $7 million. The prime contractor arranged 70% of the financing from U.S. and European sources. Bids are open to international competition.



Aerial photos were only way to fix route.

To meet the tight design schedule, engineers used aerial photography to develop topographic and geologic maps of the route. After the government agreed to a tentative alignment, Hunting Surveys, Ltd., London, plotted the centerline and photographed it twice.

First they flew at 15,000 ft and produced a map of a 4-mile-wide band to a scale of 1:10,000. After designers refined the alignment, Hunter flew it again at 5,000 ft and mapped a band about 1 mile wide on a 1:2,000 scale.

Magnifying problems, the geology of the mountains is among the most challenging in the world, says Herb Bruck, White's project manager. "To explore these soils and formations by conventional field methods would have taken years and the cost would be astronomical."

Instead, the engineers rely on photo interpretation backed up by geophysical methods, such as seismic exploration, to investigate some formations in depth. Once those data are recorded, they take field borings to determine conditions for bridge foundations and slopes, particularly in mixed sandstone and clay formations where water intrusion can cause slides.

Once the final centerline and profiles are determined, engineers add drainage and other design features and then electronic processing takes over. Computers and automated plotters produce construction drawings, classify rock and excavation material, calculate quantities and produce mass diagrams.

All engineering will be completed early next year, with construction to finish about two years later.

U.S. agencies push for building subsystems

Building product manufacturers last week received their first briefing on the federal government's plan to design and erect its buildings with factory-made, precoordinated subsystems. The subsystems would take the place of the collection of parts and components that are often shoved, kicked, jimmied and shimmied into place in the field.

The subsystems program is under development by the Federal Construction Council, a standing committee of the National Research Council's Building Research Advisory Board. The council is supported by the government's 10 major construction agencies, which include the Public Buildings Service of the General Services Administration, the Corps of Engineers, the Postal Service and the Naval Facilities Engineering Command.

The search for those parts of a building that could be developed as dimensionally coordinated subsystems in quantities large enough to [illegible] attracted about 200 persons representing building materials, components and systems producers, architects, engineers and construction industry association representatives.

Each of the 10 agencies has assigned employees to the study, which is in the Phase 1 or information-gathering phase. This is expected to be completed in September.

The types of subsystems so far identified and quantified include ceiling-lighting, conditioned air distribution, interior space dividers, exterior walls, roofs, electrical service poles, floors and ganged toilet-washroom systems.

After the systems have been identified and the potential size of the market determined, the National Bureau of Standards will develop the criteria and testing procedures that will be needed by the various agencies to develop the performance standards to which industry will be required to respond.

Federal agencies also hope that the program, once under way, will encourage state and local governments to use the same subsystems, thus expanding the manufacturers' market.

Although the meeting was designed as an information exchange session, the producers clearly were hearing about the subsystems program in detail for the first time. Reaction therefore was cautious, with industry representatives more interested in getting information than expressing opinion. Generally industry spokesmen agreed that the government could be expecting more than was possible and that subsystems and systems building might be less of a great cost-cutter than expected.

Robert B. Darling, president of Barber-Colman Co., Rockford, Ill., and president of the Producers Council, noted the confusion surrounding just definition of a building subsystem and the confusion on the part of owners as to what they want to accomplish through the use of performance specifications and subsystems.

Approved For Release 2001/08/09 : CIA-RDP86-00244R000100140027-2